

A photograph of an industrial facility with several tall smokestacks emitting thick white plumes of smoke that fill the upper half of the frame. The sky is a dark, overcast grey. In the background, some industrial structures and scaffolding are visible. The overall tone is somber and industrial.

# Globalization, Climate Change, and Cleantech Supply Chains in the Age of Covid-19

Jonas Nahm, ISEP Webinar, April 15 2020

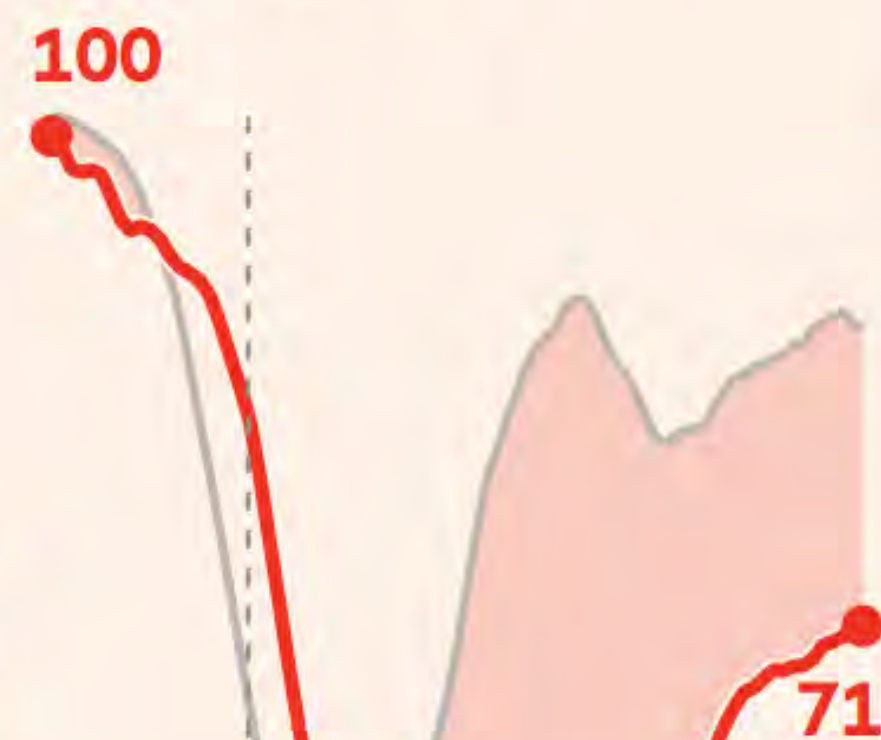


Subindices (Jan 1 2020 = 100)

### Real estate floor space sales



### Power plant coal consumption



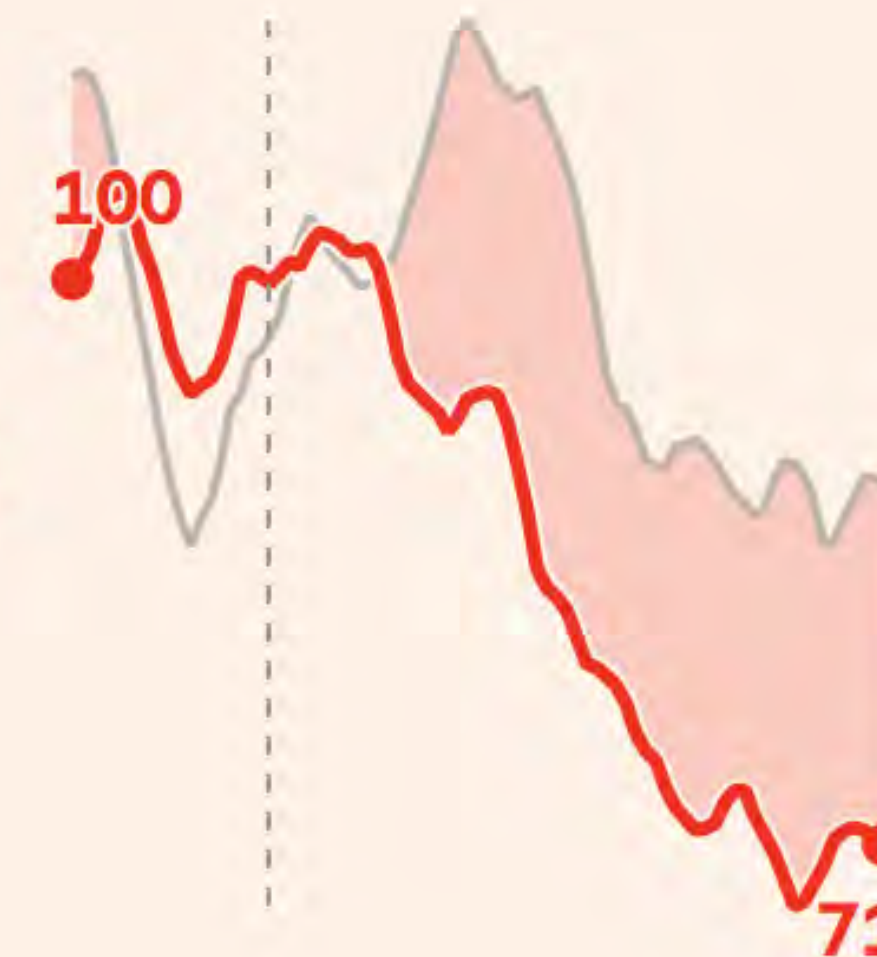
### Container freight



### Traffic congestion



### Air pollution



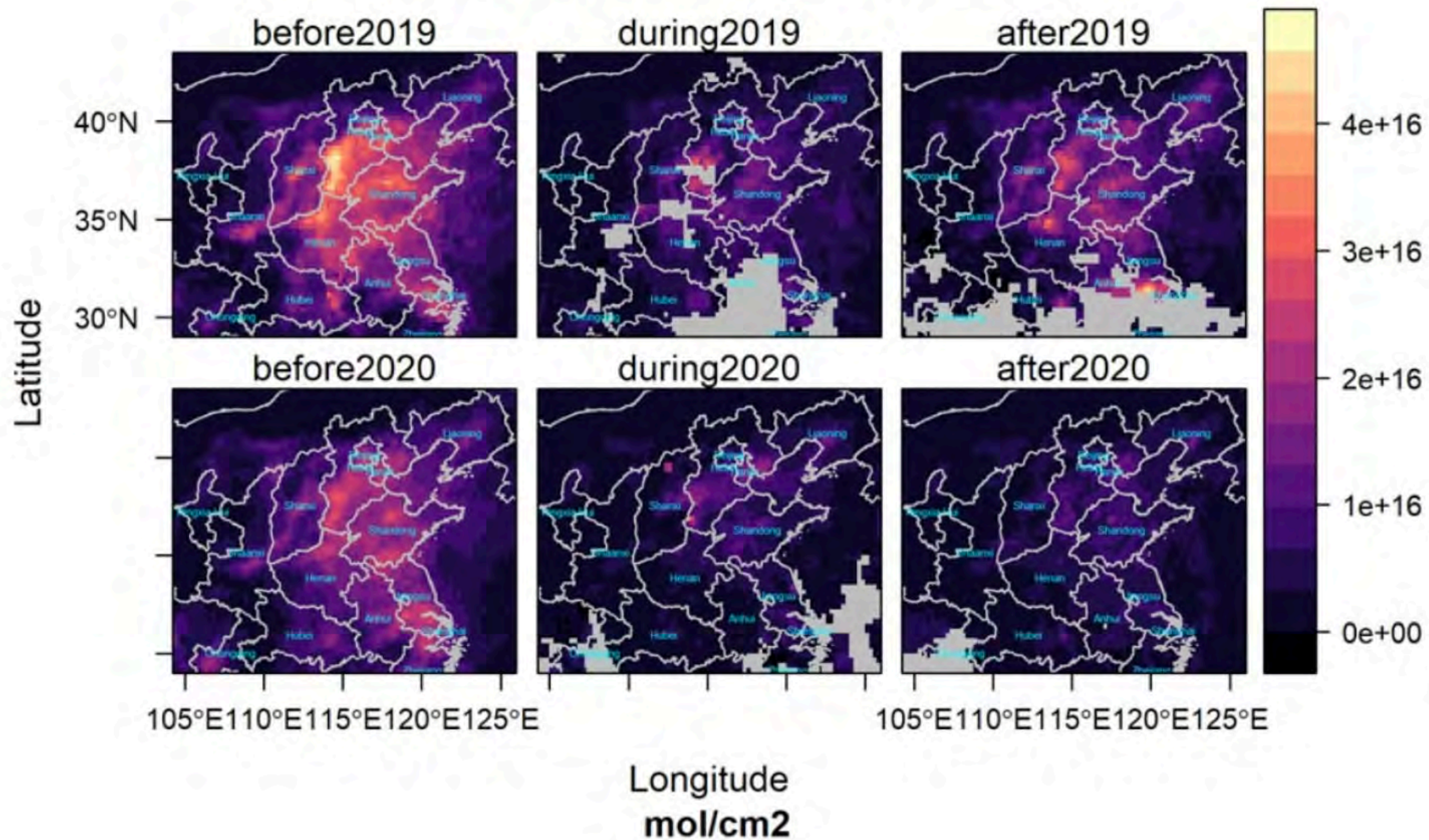
\*2019 values at same number of days before/after the lunar new year

Sources: WIND; EntGroup; FT research

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## Satellite-based NO<sub>2</sub> levels before, during and after the Chinese New Year holiday





# Covid-19 and Climate

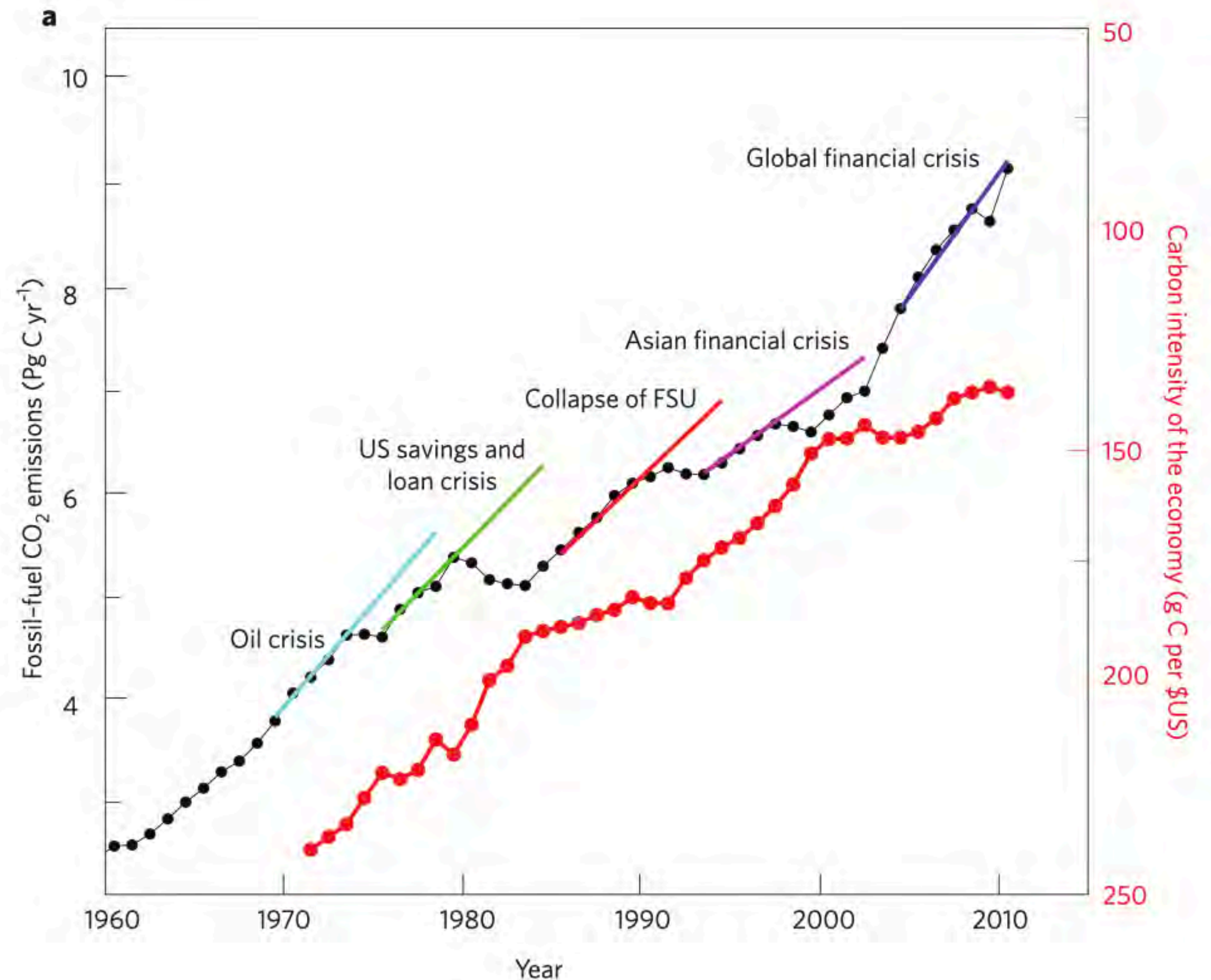
- Fact 1: Emissions reductions are temporary, and smaller than you'd think
- Fact 2: Green stimulus share will likely be too small
- Fact 3: Covid-19 is undermining globalization, and that's bad for emissions

A photograph of an industrial facility with several tall smokestacks emitting thick, white plumes of smoke that fill the sky. The scene is somewhat dark, suggesting an overcast day or dusk. A black rectangular box is overlaid on the lower half of the image, containing white text.

**Fact 1: Emissions reductions are temporary, and smaller than you'd think**



**Emissions reductions are temporary, if past crises are any guide.**

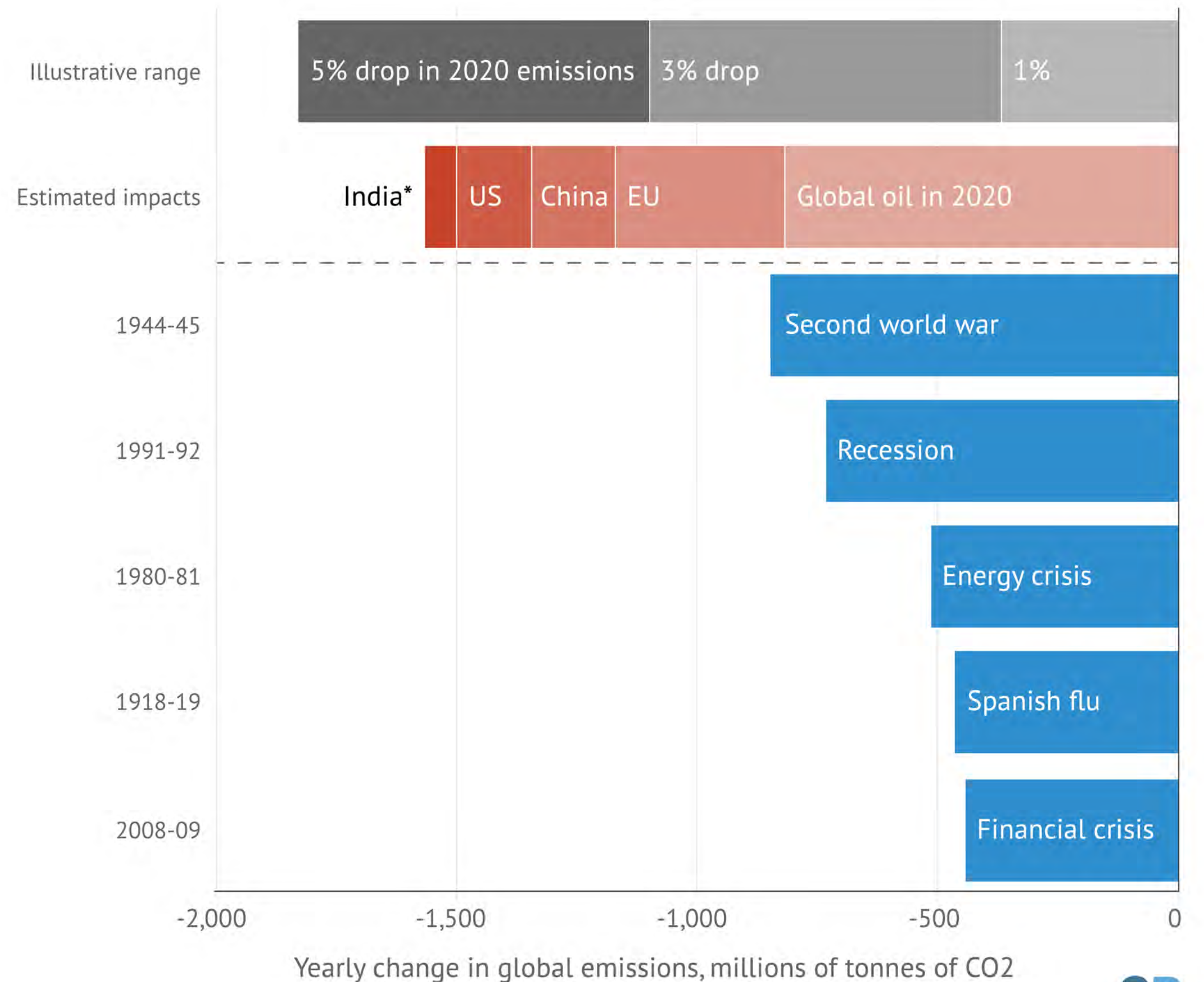


Source: Peters, G. et al. Rapid growth in CO<sub>2</sub> emissions after the 2008–2009 global financial crisis. *Nature Clim Change* 2, 2–4 (2012).

They are also likely to only amount to ~4 percent to global emissions.

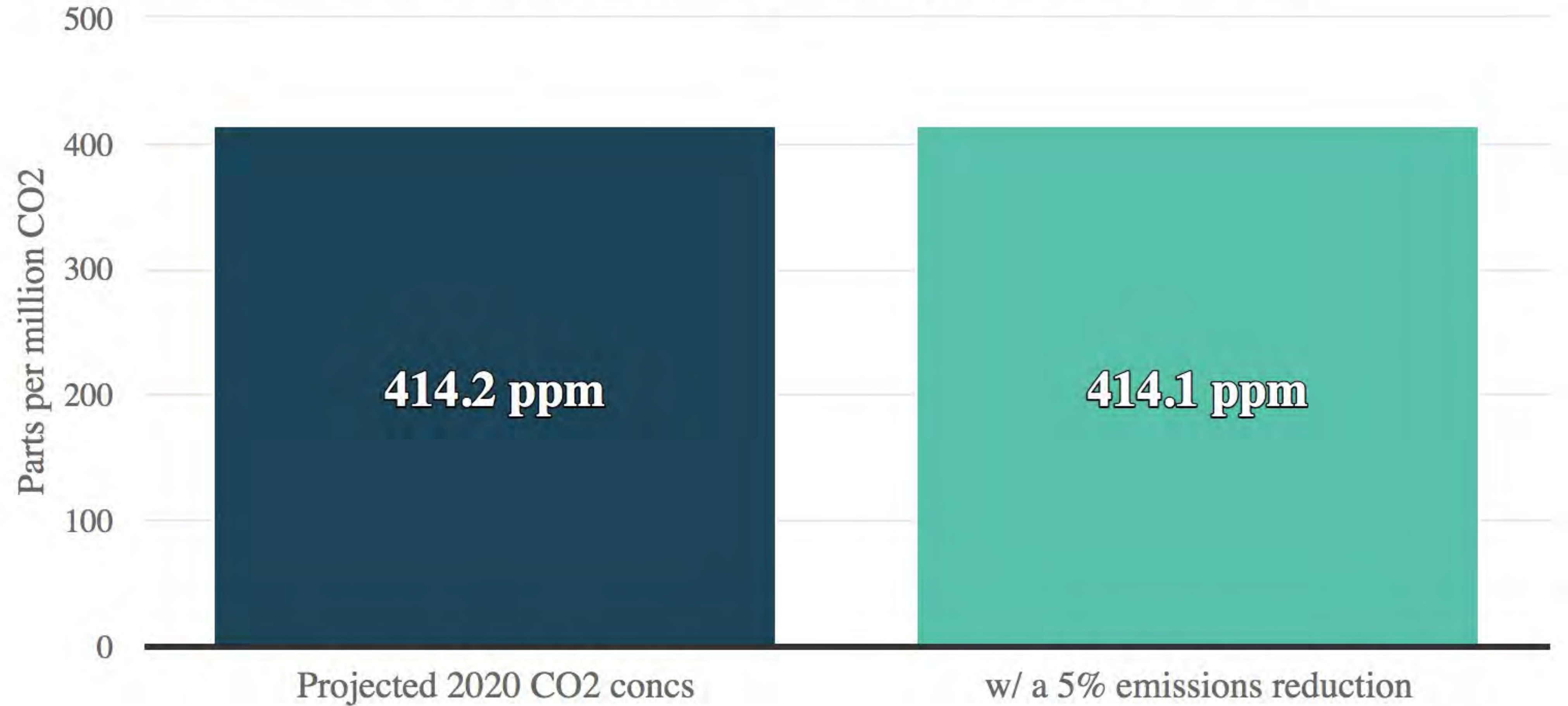
### Coronavirus could trigger the **largest ever annual fall** in CO2 emissions

Pre-crisis GDP estimates suggested CO2 would rise by more than 1% in 2020 (470MtCO2)





## COVID-19 will have no detectable impact on global temps in 2020





A photograph of an industrial facility with several tall smokestacks emitting thick, white plumes of smoke that fill the sky. The scene is somewhat dark, suggesting an overcast day or the density of the smoke. A black rectangular box is overlaid on the lower half of the image, containing white text.

**Fact 2: The green stimulus share  
will likely be too small**



A photograph of Angela Merkel, the former Chancellor of Germany, standing in front of the Reichstag dome in Berlin. To her right are the German flag and the European Union flag. She is wearing a blue top and has her hands clasped in front of her.

# A Golden Opportunity?

Unprecedented stimulus funding in the post-Covid recovery could trigger global investments in decarbonization.



# After the Great Financial Crisis, no overwhelming climate push

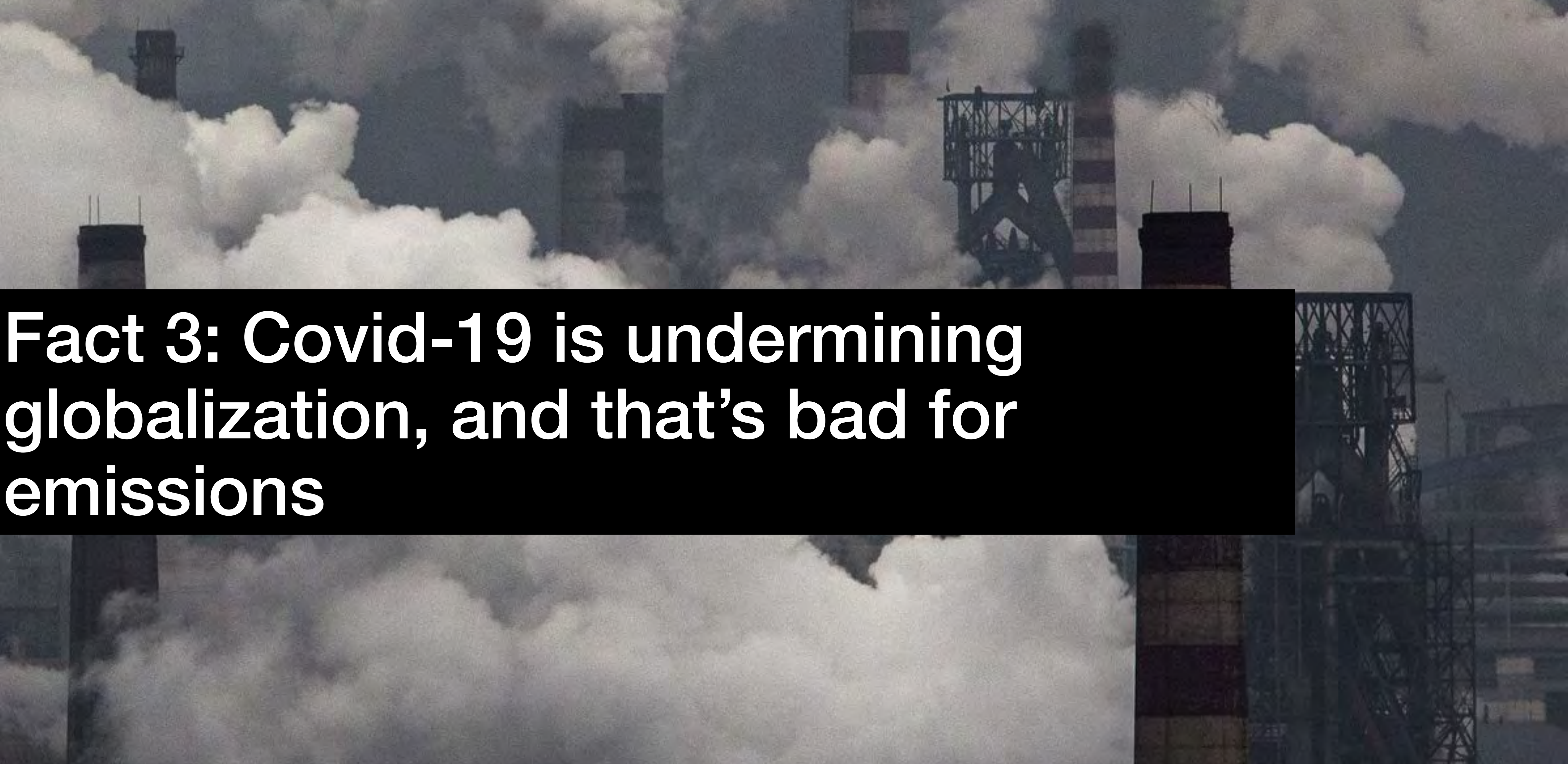
- FY2009 - FY2010, some \$500 billion spent on “green” projects, 16 percent of global stimulus spending. Energy investments accounted for roughly 11 percent.
- In the United States, \$787 billion committed under the 2009 American Recovery and Reinvestment Act, less than \$80 billion committed to green investment. (CSIS 2010).
- These numbers are based on projected top line spending, actual percentage of green stimulus estimated closer to 5 percent.



# Carbon temptation

- Temptation to fund construction projects, which increased global emissions by 5 percents in 2010 recovery (Peters 2010)
- In China, shelved coal power plants could quickly be activated to spur growth and employment
- European Airlines asking for carbon taxes to be paused, German carmakers push back on climate targets
- In the United States, airlines and oil sector key stimulus targets



A photograph of an industrial facility with several tall smokestacks. Thick, white plumes of smoke or steam are rising from the stacks, filling much of the frame. The sky is a dark, overcast grey. In the foreground, the silhouettes of industrial structures, including scaffolding and pipes, are visible against the smoke. The overall tone is somber and industrial.

**Fact 3: Covid-19 is undermining globalization, and that's bad for emissions**

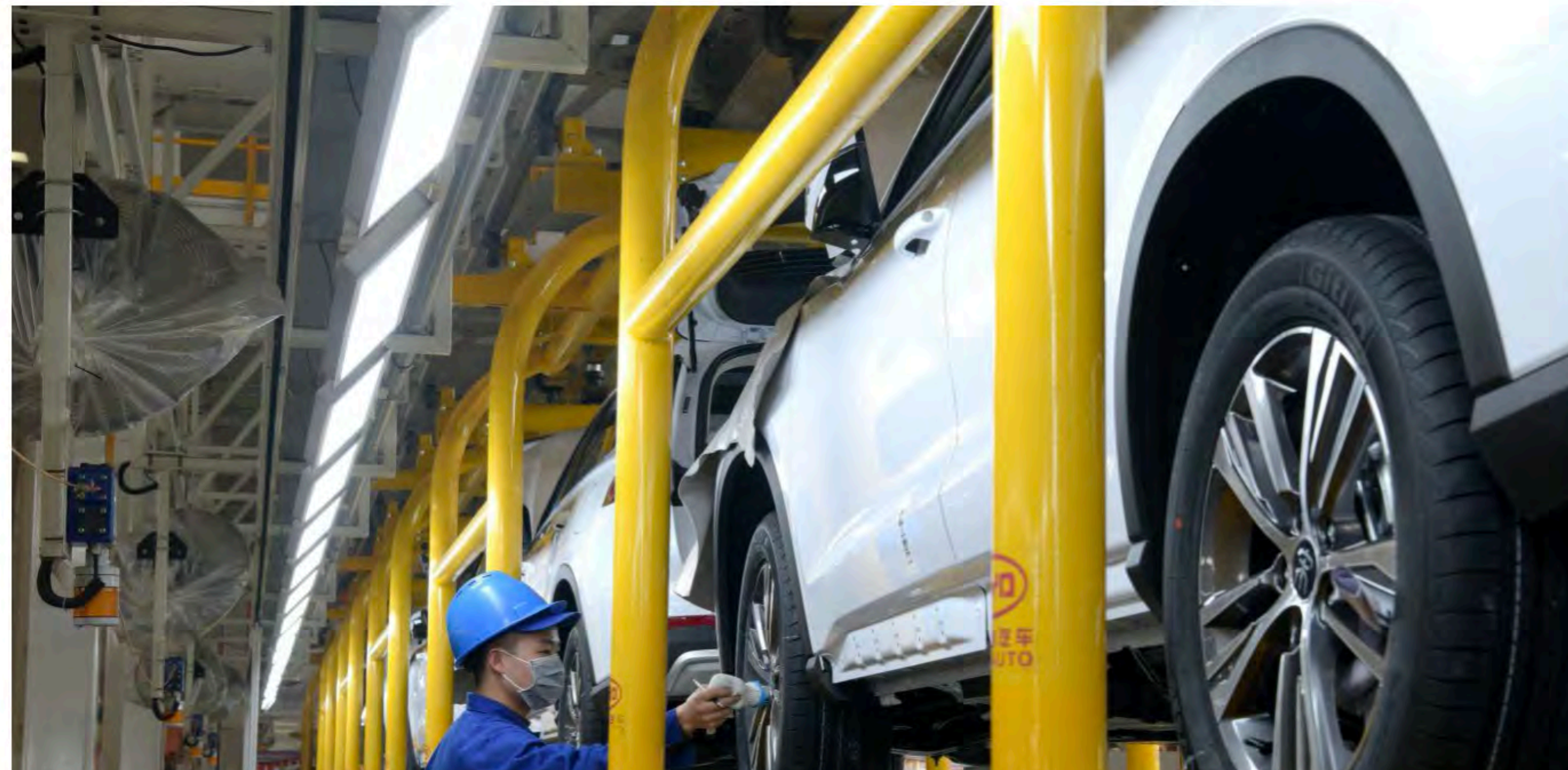


# Will the Coronavirus End Globalization as We Know It?

The Pandemic Is Exposing Market Vulnerabilities No One Knew Existed

By [Henry Farrell](#) and [Abraham Newman](#)

March 16, 2020





# 1 Avoid the manufacturing trap

## 2 Collaborate with China





# The political logic of green industrial policy

- Climate policy requires vast fiscal/regulatory resources to
  - incentivize behavioral change
  - offset costs of switching to new energy sources
  - compensate losers



# Avoid the manufacturing trap

- Political need to build coalitions by promising local economic benefits
- Unique political status of manufacturing jobs
- Public funds primarily offered for local goods/products/services
  - Historically, proliferation of protectionism in clean energy policy
  - Trade barriers
  - Local content rules



# In 2015, 44 US state programs with local content requirements

- Requirements to
  - use locally-locally-manufactured equipment (Michigan, Delaware)
  - use locally-generated electricity
  - grow local feedstock for biofuel
- Internationally: countervailing duty & anti-dumping disputes
- **Can we avoid the manufacturing trap in the post-Covid stimulus packages?**



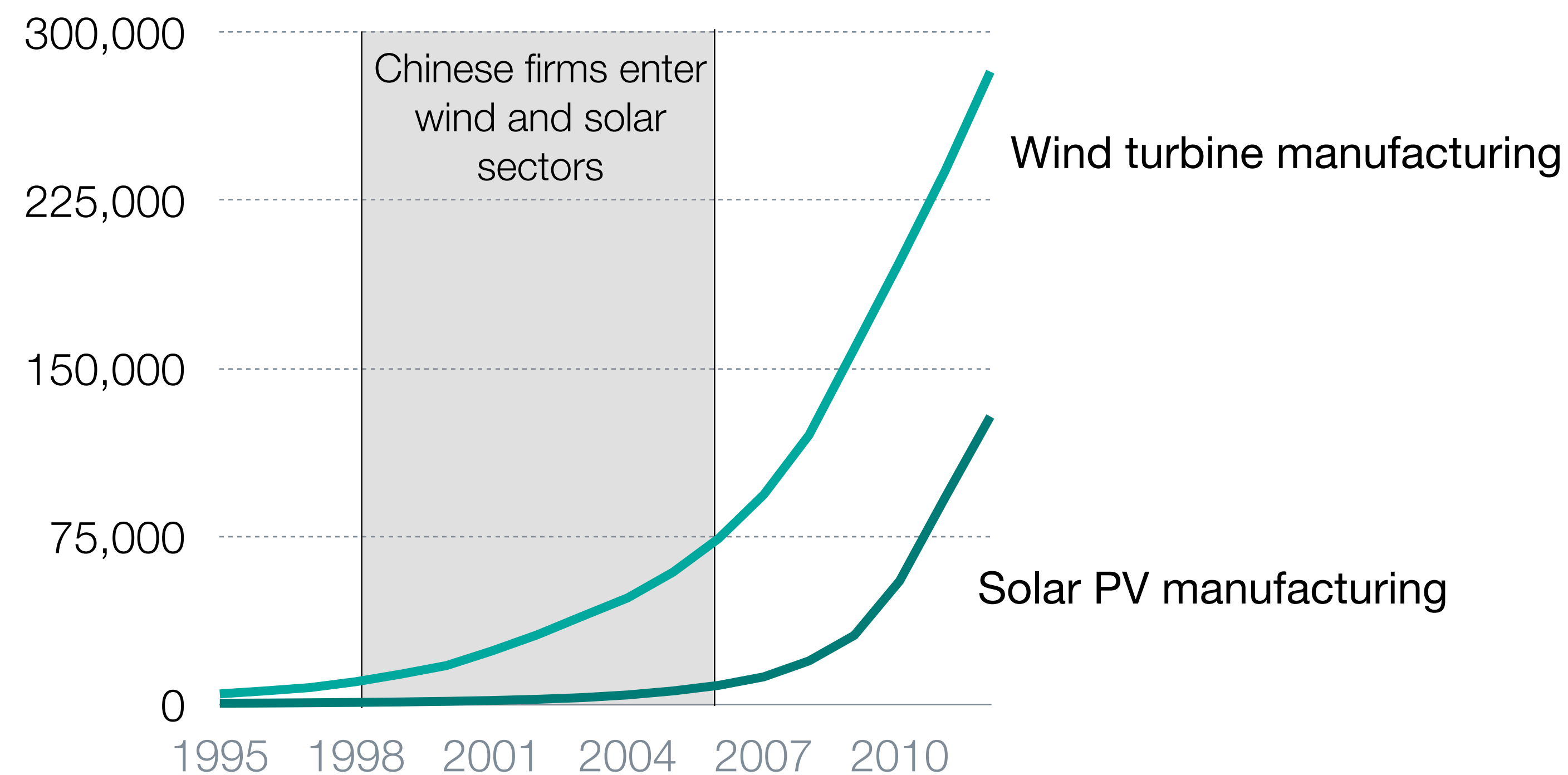
# Fixing the climate crisis will require collaboration with China

- China produces 66% of the world's solar panels
- Chinese wind turbine manufacturers now represent approximately 35% of global supply
- China is the largest supplier of (and market for) electric vehicles
- Chinese firms make 69% world's supply of lithium-ion batteries



# Collaborative advantage in renewable energy innovation

Cumulative Global Wind and Solar PV Manufacturing (in MW)

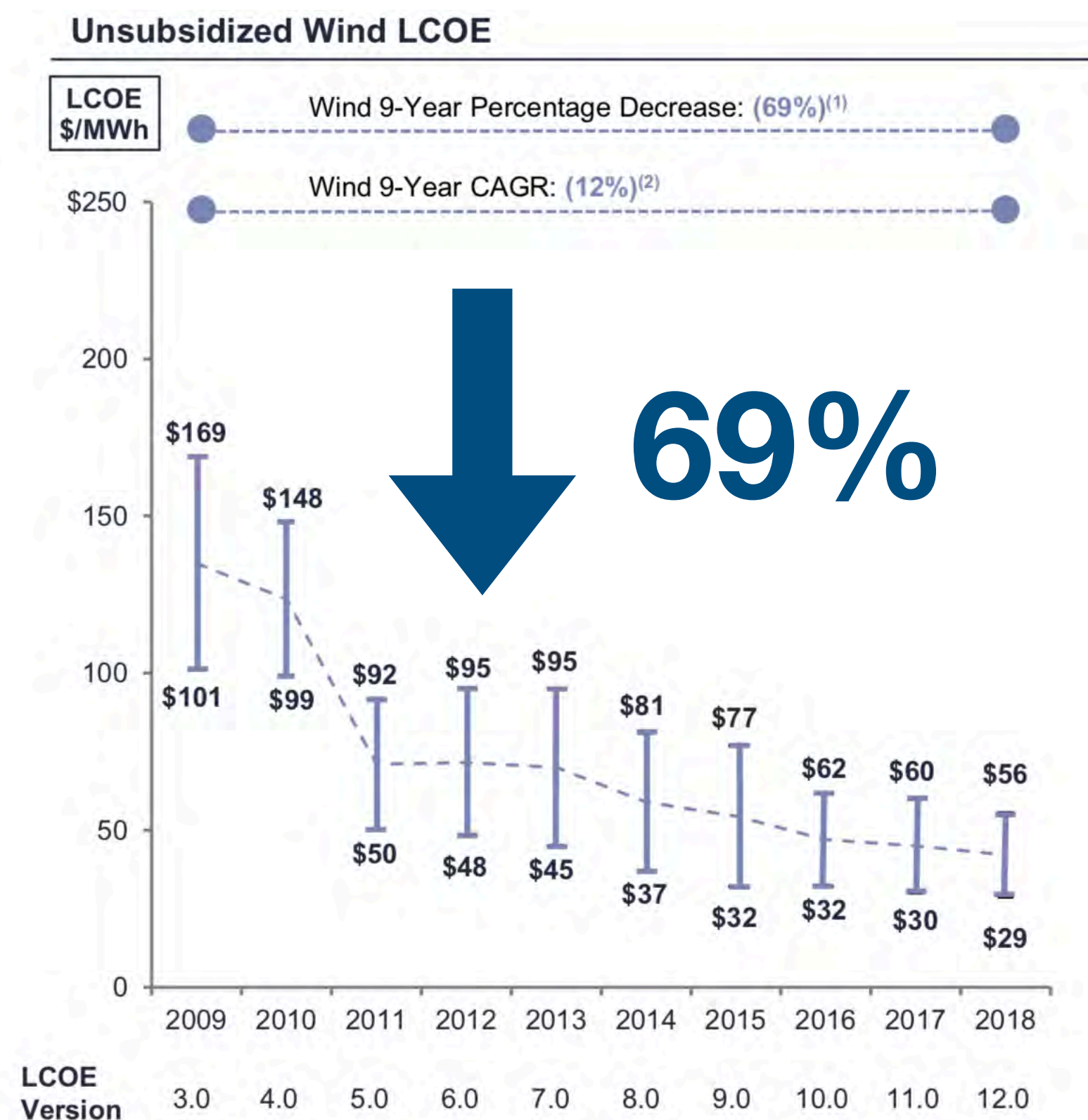


Source: Earth Policy Institute, 2013.

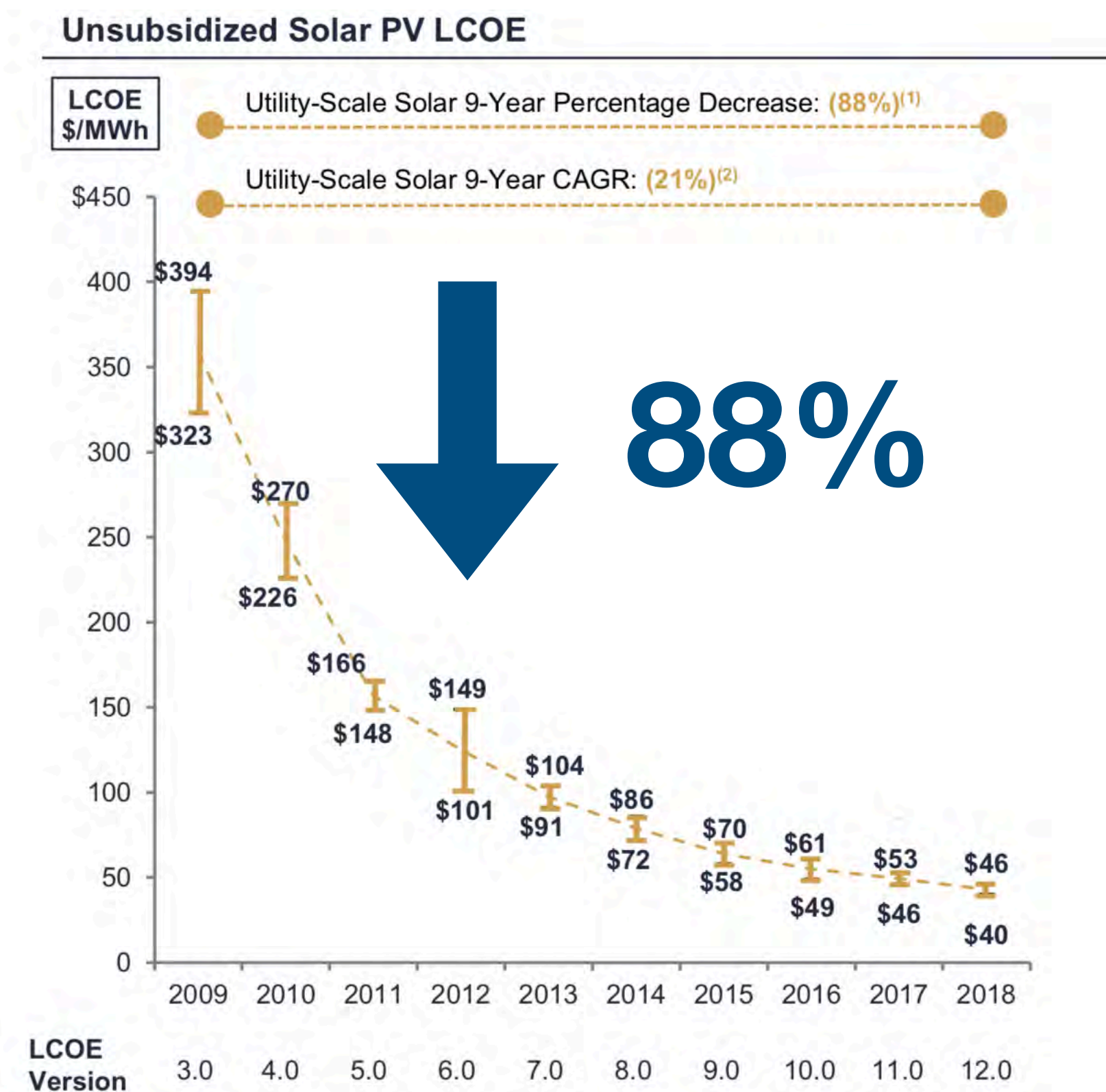


# Cost declines because of collaboration with China

Wind



Solar



Source: Lazard



# Covid-19 and Climate

- Lesson 1: Current emissions reductions demonstrate the scale of the climate challenge
- Lesson 2: Green stimulus is an opportunity but won't get us around the politics
- Lesson 3: If we have any hope of preventing the worst consequences of climate change, we need to find a way to work with China